



Fact Sheet

Aquifer Protection Permit #P-100419
Place ID 887, LTF 45772

City of Casa Grande Water Reclamation Facility
SIGNIFICANT AMENDMENT

The Arizona Department of Environmental Quality (ADEQ) proposes to issue **an amendment** to the Aquifer Protection Permit for the subject facility that covers the life of the facility, including operational, closure, and post-closure periods unless suspended or revoked pursuant to A.A.C. R18-9-A213. This document gives pertinent information concerning the issuance of the permit. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards at the Point of Compliance; and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). The purpose of BADCT is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., local subsurface geology) to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer, or to keep pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

Name of Permittee:	City of Casa Grande
Mailing Address:	510 E. Florence Ave. Casa Grande, AZ 85222
Facility Name and Location:	City of Casa Grande Water Reclamation Facility 1194 West Kortsen Casa Grande, AZ 85222

Regulatory Status

The City of Casa Grande currently has an Individual Aquifer Protection Permit (APP) No. 100419 first issued by ADEQ on October 03, 1994. The original APP was issued for the operation of a new 4.0 million gallon per day (mgd) Wastewater Treatment Plant (WWTP) with all effluent discharged for reuse. A permit amendment was issued on June 01, 2000, to allow the discharge of tertiary treated domestic wastewater from the City of Casa Grande WRF, to the North Branch of the Santa Cruz River, in accordance with Arizona Pollutant Discharge Elimination System (AZPDES) Permit No. AZ0021873.

Amendment Type	Effective date	Amendment Item
Other Amendment	December 29, 2004	Re-authorized AZPDES as permit no. AZ0025178
Significant Amendment (APP)	August 11, 2005	Expand the WRF from 4.0mgd to 6.0mgd
Significant Amendment (APP)	October 10, 2007	Expand the WRF from 6.0mgd to 12.0mgd.
AZPDES permit was re-authorized	Authorized November 25, 2008	Applied for the renewal of the AZPDES permit no.AZ0025178
Consent Order	Effective date	Violation

Consent Order (APP)	June 29, 2002	For failing to install a monitor well and monitor groundwater at the point accordance with the requirements of the APP
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The following table includes APP and AZPDES Amendments issued to City of Casa Grande Wastewater Reclamation Department by the Arizona Department of Environmental Quality (ADEQ):

Facility Description

The City of Casa Grande is authorized to operate the Casa Grande Water Reclamation Facility (WRF), a sewage treatment facility located in the City of Casa Grande, Arizona. The permittee is authorized to treat an average day maximum month (ADMM) flow of 14.52 million gallons per day (mgd) with a yearly average limit of 12.0 mgd. Due to the disposal capacity limitations the permittee shall only discharge 9.0 mgd (ADMM). For this reason the discharge limit for the new plant is set to at 9.0mgd in Table IA-II. Upon submitting an Other Amendment that demonstrates additional disposal capacity the permittee may increase the discharge flow limit up to an annual average daily flow (AADF) of 12.0 mgd or 14.25(ADMM).

The 12.0 mgd facility replaces the existing 6 mgd facility. Until the new 12.0 mgd treatment capacity plant is built and operational, the facility shall monitor the effluent from the existing plant in accordance with Section 4.2, Table IA-I and IB-I.

Existing Facility

The existing facility treatment process consists of headworks with screens, an influent lift station, grit chambers, aeration and anoxic tanks for nitrification-denitrification, secondary clarifiers, tertiary (sand) filters, chlorine disinfection, sludge digesters, sludge thickeners, and an effluent pump station. The WRF also contains an industrial wastewater pre-treatment system that consists of a selector basin, an aeration basin, a clarifier and nitrogen feed system.

New Facility

Upon commencement and operation of the new 12.0 mgd plant, the facility shall monitor the new Class A+ effluent in accordance with Section 4.2, Table IA-II and IB-II. The new facility shall consist of an influent pump station, one treatment train consisting of screens, influent pump station, grit system, aeration basins with nitrification/denitrification, clarifiers, (disk) filters, sodium hypochlorite disinfection, chemical feed, bisulfate dechlorination, sludge dewatering system, an effluent pump and conveyance system, and odor control system.

Three on-site ponds are provided for containment of reclaimed water for reuse. The Effluent disposal methods are discharge to the North Branch of the Santa Cruz Wash, as regulated under a valid AZPDES permit #AZ0025178, reuse under a valid reclaimed water permit, and evaporation from the surface of the on-site storage ponds. Monitoring of nearby drainages is not included as a permit condition because the facility will be

monitoring discharges to the surface water in accordance with AZPDES permit AZ0021873.

Water sludge is thickened, dewatered, and hauled off-site for management and disposal in accordance with state and federal regulations. In addition to the APP conditions pertaining to treatment and disposal of sewage sludge, the permittee shall also comply with the requirements for sludge disposal, use, and transportation in 40 Code of Federal Regulations (CFR) Part 503 and 18 A.A.C. Ch. 9, Art. 10.

Depth to groundwater at the WRF site is approximately 20 to 30 feet below ground surface (bgs) in the upper, perched regional aquifer and in the lowest, regional aquifer approximately 150 to 200 feet (bgs) beneath the facility with flow directions to the northwest.

Amendment Description

This significant permit amendment was initiated by the City of Casa Grande, to expand the treatment capacity of the WRF from 6.0 mgd to 12 mgd, and to change the reclaimed water classification from Class B+ to Class A+. The permittee is authorized a maximum discharge capacity is 9 million gallons per day (mgd).

Sections in the permit being updated include:

1. Section 2.1 - Facility/Site Description: Increased the average daily flows from 6.0 mgd to 12 mgd.
2. Section 2.2.1 - Engineering Design: Added the following: The design report in support of the significant permit amendment prepared and stamped, dated, and signed (sealed) by Russell A. Wachter, Registered Professional Engineer, and Andrew C. Gilmore, Registered Professional Engineer, for Carollo Engineers, dated October 1, 2007.
3. Section 2.5.3 - For discharge to the reuse site the permittee shall monitor the Class A+ reclaimed water parameters listed under Section 4.0. Table IB-I and IB-II in addition to the routine discharge monitoring parameters listed in Table IA-I and IA-II.
4. Section 3.0 - Compliance Schedule: Schedule submittal of engineer's statement of completion.
5. Section 4.0 - Tables of Monitoring Requirements: Changes to include: Table IA-I and IA-II, Routine Discharge Monitoring; Table IB-I and IB-II, Reclaimed Water Monitoring; Groundwater Monitoring, Table IIA-I (Class B+) and IIA-II (Class A+).
6. Section 5 - References and Pertinent Information: Added information on the significant APP amendment application (date application received, public notice date, and permit signature date).

In addition, relevant permit language has been changed to conform to the current APP format.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

The new WRF is designed, constructed, operated, and maintained to meet the treatment performance criteria for new facilities as specified in A.A.C. R18-9-B204.

The effluent that is reused as regulated under a valid Reclaimed Water Permit, disposed to the North Branch of the Santa Cruz Wash through the AZPDES permit, is stored in 40 year old unlined on-site ponds which were permitted without synthetic or clay liners due to their low infiltration rate. The effluent is denitrified and disinfected prior to storage.

Since the WRF expansion shall be constructed within the same footprint of the master plan that was approved under the existing APP, setback requirements according to the new APP rules will not be required.

The facility shall meet the requirements for pretreatment by conducting monitoring as per R18-9-B204 (B)(6)(b)(ii):

III. HYDROGEOLOGIC SETTING

The facility is located in the Eloy sub-basin of the Pinal Active Management Area (AMA) within the Santa Cruz-Rio Magdalena-Rio Sonoyta Watershed. One perched and two regional aquifers are present beneath the WRP. Depths to groundwater beneath the WRP in the upper, perched aquifer, the Casa Grande Water Zone, range from 20-32 feet below the land surface but could be as deep as 100 feet. The flow direction in the Casa Grande Water zone varies significantly due predominantly to man-induced recharge. Groundwater flow was estimated to be flowing northwest at Kocide Chemical, approximately one mile south of the WRP in 1991 and west-northwest at Ross Labs, 0.5 miles south of the WRP in 1990.

Depth to groundwater at the WRF site is approximately 20 to 30 feet below ground surface (bgs) in the upper, perched regional aquifer and in the lowest, regional aquifer approximately 150 to 200 feet (bgs) beneath the facility with flow directions to the northwest. Depths to groundwater in the lower, unconfined regional aquifer are about 150 to 200 feet. Groundwater flow is generally northwest, however, several groundwater depressions exist due to groundwater pumping, locally altering the groundwater flow direction. Groundwater may be present in unconfined, partially confined and confined conditions.

ADEQ's Groundwater Database indicates 9 wells are located within ½ mile of the center of the facility. Wells are used for irrigation, industrial, monitoring or unused. There are no drinking water wells within one mile of the facility.

Long term depletion of groundwater has reportedly caused compaction of silt and clay layers within the alluvium, resulting in large scale subsidence and earth fissuring. Earth fissuring has occurred in the vicinity of Eloy and Picacho, however, no earth fissures are known to exist near the CGWRF.

IV. STORM WATER/SURFACE WATER CONSIDERATIONS

The CGWRF is located within the Santa Cruz surface water basin. Surface water near the facility drains, in general, from southeast to northwest to the ephemeral North Branch of the Santa Cruz River which is located ~¼ mile north of the facility. The North Branch trends east to west at this location although it is not well defined. The CGWRF is not located within the 100-year floodplain for this stream, but is located immediately south of it. The CGWRF is protected by levees from flooding associated with the Santa Cruz River.

Monitoring of nearby drainages was not included as a permit condition because the facility will be monitoring discharges to the surface water in accordance with AZPDES permit AZ0025178.

V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Depth to groundwater at the WRF site is approximately 20 to 30 feet below ground surface (bgs) with the flow direction to the northwest. The effluent is expected to meet Aquifer Water Quality Standards (AWQS) at the point of discharge. Most of the effluent is expected to be used for beneficial reuse and only the excess will be discharged into Santa Cruz wash located approximately ¼ mile north of the WRF under valid 6.0mgd, AZPDES permit AZ0025178. The surficial flow within the ephemeral Santa Cruz wash as a result of discharge at the AZPDES discharge point is estimated to be limited to a meandering width of 75 feet within the stream channel and to be visible for about ½ mile. If the total allowable 6.0 mgd AZPDES permit AZ0025178 flow from the WRF were discharged to the wash, the extent of visible surface water flow is estimated to be between one and two miles.

Monitoring and Reporting Requirements

The purpose of the discharge monitoring tables is explained below:

Monitoring Table	Constituents	Monitoring for Disposal Sites
IA-I IA-II	Flow, total nitrogen, nitrate-nitrite as N, VOCs, metals, major cations/anions, and fecal coliform	Effluent Pump Station
IB-I IB-II	fecal coliform, total nitrogen Turbidity and Enteric Virus	Class A+ Reclaimed Water Uses

Monitoring Frequency for Parameters:

Parameter	Effluent	Reclaimed Water (Class B+ and A+)	Groundwater: POC 2
Effluent Flow	Daily, Calculated Monthly	Daily; Calculated Monthly	Not Applicable
nutrients: total nitrogen, nitrate-nitrite as N, TKN (nitrate as N, as applicable)	Monthly	Monthly	Monthly

Parameter	Effluent	Reclaimed Water (Class B+ and A+)	Groundwater: POC 2
Inorganic chemicals as listed in A.A.C. R18-9-1-406.B: antimony, arsenic, barium, beryllium, cadmium, free cyanide, fluoride, lead, mercury, nickel, selenium, and thallium.	Quarterly	N/A	Quarterly
Fecal Coliform, Turbidity, Enteric Virus	Daily	Daily	Monthly (Total coliform)
VOCs and semi-VOCs as listed in AAC R-18-11-406.C	Semi-annually	N/A	Semi-annually
Major cations/anions	Quarterly	N/A	Quarterly

Point(s) of Compliance (POC)

For each compliance schedule item listed below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Groundwater Section. A copy of the cover letter must also be submitted to the Water Quality Compliance Section, Enforcement Unit.

The two hazardous / non- hazardous points of compliances (POCs) are designated at the following locations:

POC #	Descriptive Location	Latitude	Longitude
1	It is designated at the northwest corner of the WRF. No groundwater well is installed	32°54'45" N	111°47'30" W
2	Located 750 feet west-northwest (downgradient) of the AZPDES discharge point into the North Branch of the Santa Cruz Wash. This location is approximately 1650 feet north (downgradient) of WRF.	35°55'02" N	111°47'18" W

The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

Groundwater monitoring at POC#2 is required for this facility because the AZPDES discharge exceeds 250,000gpd and the potential for groundwater to be impacted by the AZPDES discharge.

VI. COMPLIANCE SCHEDULE

A compliance schedule is included in Section 3.0 of the permit which includes the requirement for submittal of an Engineer's Certificate of Completion.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The City of Casa Grande has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202 (B).

The WRF modification was designed as per the design report prepared and stamped, dated, and signed (sealed) by Russell A. Wachter, Registered Professional Engineer, and Andrew C. Gilmore, Registered Professional Engineer, for Carollo Engineers, dated October 1, 2007. The permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203 (B)(1)and(2). . The permittee shall maintain financial capability throughout the life of the facility. The dollar amount demonstrated for closure and post closure cost estimates is \$1,000,000.00.

Zoning Requirements

The City of Casa Grande WRF has been properly zoned for the permitted use and the permittee has complied with all zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201 (B) (3).

VIII. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-108(A))

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-109(A))

The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-109(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division - Groundwater Section - APP and Reuse Unit
Attn: Monica Phillips
1110 West Washington Street, Mail Code 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771-2253